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## Commentary: Permanent cap solution for San Jacinto River Superfund site

By David Keith | July 24, 2014 | Updated: July 25, 2014 12:16pm

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The San Jacinto River Superfund site in Harris County north of Interstate 10 is garnering considerable attention. As the Chronicle suggested in its "Enduring Solution Now" editorial (Page B17, June 27), it's important Harris County residents address the health of their local waterways.

As a sediment scientist and geologist working in marine and shoreline environments around the United States, I consider it equally important the cleanup of rivers be accomplished in a thoughtful, rational manner. Objective scientific and technical considerations ought to drive any decision about the best way to protect the local environment. Otherwise, some cleanup measures might make the problem worse and bring risks that do not exist.

This is particularly true of the San Jacinto River Superfund site. In 1965 and 1966, the site was used for paper mill waste disposal with the approval of the [Harris County Health Unit Air and Water Pollution Control Section](#). At the time, no one knew this waste material contained dioxin. In 2008, this site was identified for cleanup by the [U.S. Environmental Protection Agency](#).

My company was hired to design and oversee installation of an armored cap of protective material in accordance with stringent and protective **EPA and U.S. Army Corps of Engineers** guidelines and oversight to contain the waste and withstand a 100-year flood event. The cap consists of three layers of protection: a **geotextile layer**, a **geomembrane layer** and a **rock layer**. **At a cost of \$9 million**, this engineered cap was completed in 2011 and has eliminated the potential for dioxin exposure from the site.

One reason the cap is effective is simple: Dioxins are insoluble - meaning they tend to bind to sediment and soil rather than dissolve in water. This makes a permanent cap, rather than dredging and removal, the safest option to reduce potential exposure. Testing bears this out. According to a recently published EPA fact sheet, "Groundwater is neither a transport pathway nor an exposure pathway at the Site." EPA also noted sampling in surface water just above the cap "did not detect any tetra-dioxin or furan, and showed that the cap is effective in preventing dioxin releases to surface water."



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Despite this success, some advocate removal of the waste without considering the likelihood that risks will be created that do not exist. If the existing armored cap were to be partially or fully removed, the waste under the armored cap could be disturbed by the construction activity, exposing the disturbed materials to potential storms or floods over the course of two hurricane seasons.

Moreover, impacted sediments would be suspended in the surrounding waterway. As a result, waste material completely contained today would be disturbed, creating environmental risks and potentially affecting the community. Additionally, this process could take up to 19 months, with removal requiring up to 17,500 heavy-truck trips on congested local roads and highways.

But there is another option, which is to enhance the remedy that is working. Right now, the EPA is considering a proposal to make the existing protective cap permanent by adding armoring designed to withstand a 500-year flood event, protecting the cap from vessel traffic and continuing the existing program of regular monitoring and maintenance.

This permanent capping approach is a proven, effective and protective remedy selected by the EPA for numerous other sediment remediation sites around the country for more than 20 years. Moreover, the San Jacinto armored cap will be one of the strongest constructed, with fortifications to withstand a 100-year hurricane event and a 500-year flood event. For context, consider the October 1994 flood qualified as a 50- to 100-year flood and Hurricane Ike was rated a two-year flood. Both of those events predate the installation of the protective cap.

Too often, rhetoric around the river's current status centers on technically unsupported claims. Environmental decision-making at this site, as well as others within the watershed, need to be centered on sound science and engineering principles that address the community's concerns in a thoughtful, logical manner while restoring the overall health of the system.

Keith, principal scientist for Anchor QEA, is project coordinator for the Remedial Investigation/Feasibility Study and Time Critical Removal Action of the San Jacinto River Waste Pits Superfund Site on behalf of International Paper Corp. and [McGinnes Industrial Maintenance Corp.](#)

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By David Keith

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